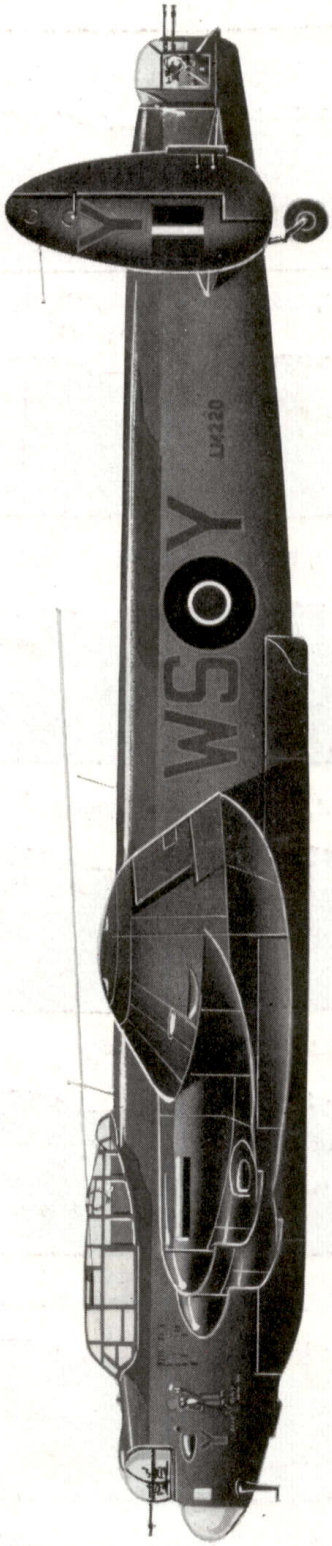
PROFILE
PUBLICATIONS

The Avro Lancaster I



NUMBER 65
TWO SHILLINGS

The Avro Lancaster I

by Brian Goulding and M. Garbett

Lancaster I, W4103, *of 5 L.F.S., Syerston.* (Photo: Imperial War Museum)

The Avro 683 Lancaster was born out of a failure, the Manchester, yet it proved not only the finest British bomber of W.W.II, but also one of the most successful aircraft of all time. Certainly no other aircraft accomplished any better the rôle for which it was designed.

The Manchester, powered by two Rolls-Royce Vulture engines, was so beset by engine troubles that in mid-1940 it was decided to fit the aircraft with four well-proven Merlin 10s of 1,145 h.p. A Manchester airframe was selected and specially serialled *BT308*; a new centre section was designed and constructed to accommodate the additional engines and in this guise was at first designated the Manchester Mk. III.

Thus was born the prototype Lancaster, and it flew for the first time on 9th January 1941. Later the same month it was delivered to A. & A.E.E. Boscombe Down for intensive flight trials.

Although *BT308* was fitted initially with three fins—at that time standard on the Manchester—they were soon replaced by larger twin fins located at the extremities of a 33-ft. span tailplane, which not only added to the aircraft's stability but also improved the field of fire from the dorsal turret.

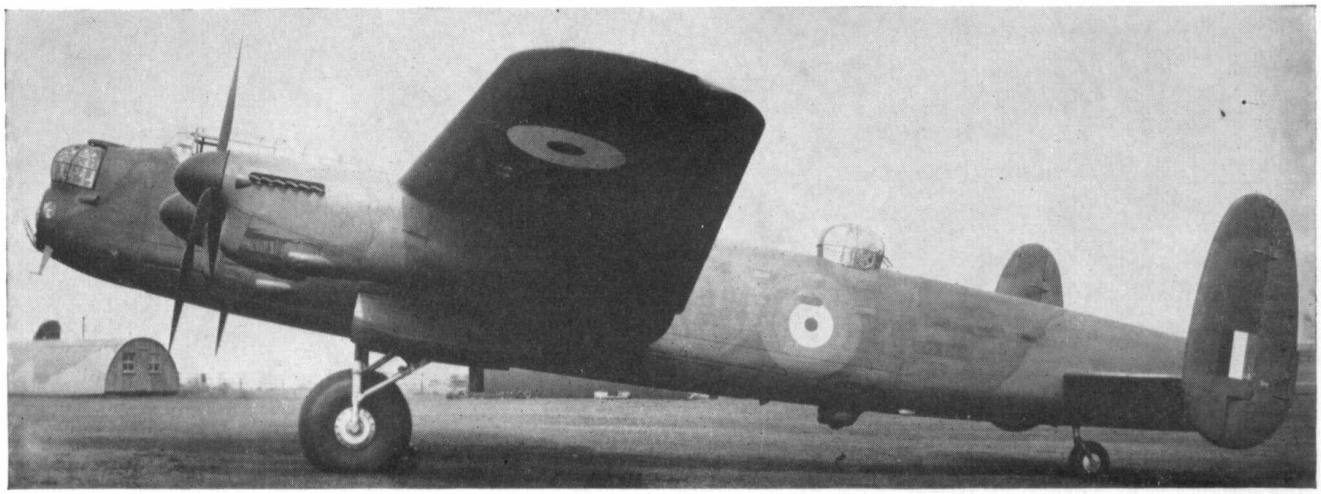
The Lancaster was an immediate success and in September 1941 *BT308* was delivered to No. 44 Squadron at Waddington for general evaluation and crew training. The second prototype *DG595* flew on 13th May 1941 and it incorporated some design modification, one being the fitting of Merlin XX engines. Both prototypes were camouflaged green and brown with yellow undersurfaces. *BT308* was a fast machine with a level flight top speed of just over 300 m.p.h., but it carried less fuel and was of a lower all-up weight than production Lancasters.

Because of the immediate success of the Lancaster and its obvious potential, a decision was taken to re-equip existing twin-engined aircraft squadrons without delay. Manchester production ceased at *L7526* and the next batch of airframes, already partially completed as Manchesters, were finished as Lancaster Mk. Is.

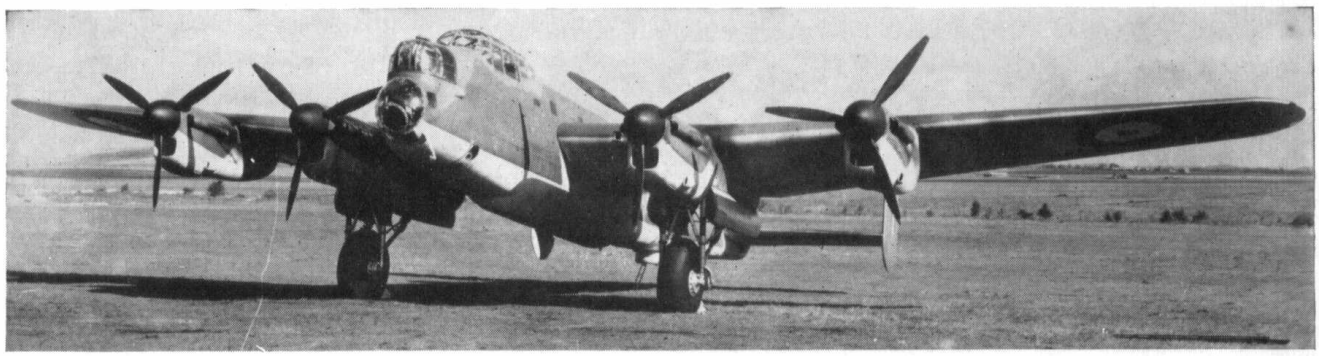
The first true production Lancaster I was *L7527* and fitted with Merlin XXs of 1,280 h.p. it first flew in October 1941, and production of the Lancaster was well and truly under way. An initial contract was placed with A. V. Roe & Co. for 1,070 machines but as demand grew and outstripped Avro's production capabilities, the Lancaster Aircraft Group was formed, made up of companies named in the production summary on page 13.

In addition to the main producers, many sub-contractors were employed in the manufacture of various parts and equipment. Other factories, such as the L.M.S. Railway Works at Derby became Lan-

The Lancaster prototype, BT308, *with Manchester empennage.* (Photo: Imperial War Museum)



Above: *Lancaster Mk. I, second prototype. Note ventral gun position.* Below: *Lancaster Mk. I, second prototype. Four 1,280-h.p. Rolls-Royce Merlin engines.* (Photos: Imperial War Museum)



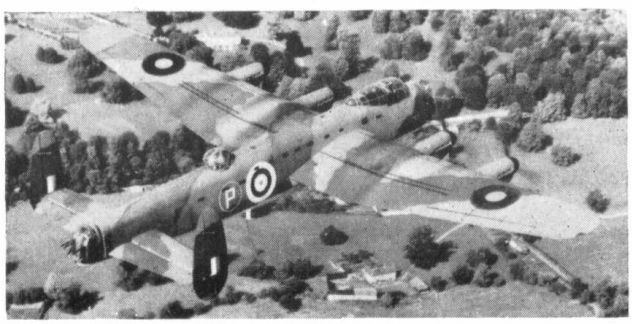
caster repair and maintenance depots.

The only production order placed outside England was one for 200 Mk. Is to be built by Short & Harland at Belfast, but this was later cancelled.

The production of the Lancaster I soon began to outstrip the supply of Merlin engines, and to solve this problem the Packard Motor Corporation of America undertook the manufacture of the Merlin under licence. This was known initially as the Merlin 28. Two Lancaster Mk. Is (*R5849* and *W4114*) were re-engined in May and August 1942, and the latter was re-designated as the official Mk. III prototype.

The Mk. III was similar to the Mk. I in most respects and the two Marks were built and delivered to squadrons concurrently. There are many recorded instances of Mk. Is having become Mk. IIIs and vice-versa, merely by change of engine, usually on major overhaul. Some Lancasters are known to have flown with both British and American Merlins fitted.

The second prototype Lancaster shows to advantage the standard upper surface Bomber Command camouflage circa *1941.* (Photo: Imperial War Museum)



The Mk. I Lancaster was never superseded by any other Mark, and continued in production until 1946 when, on 2nd February *TW910*, built by Armstrong Whitworth, was delivered to No. 207 Squadron as a B1 (Far East)—hereafter referred to as (F/E).

Some modified Lancaster B1s continued to serve with bomber squadrons until 1949–50 because of delays in Lincoln development and delivery.

The Lancaster I altered little throughout its production life, a tribute to the soundness of the basic design and structure.

It possessed great strength, and its durability, particularly under fire, became legendary and there are many ex-crew members alive today who owe their existence to the ability of the Lancaster to take almost unbelievable punishment from guns and fighters, and to return home, sometimes on only two engines. There are instances when the last few miles were flown on *one* engine.

The backbone and true strength of the aircraft was formed by the centre section spars and the roof of the 33-ft.-long bomb bay. The whole structure was designed to give great strength-for-weight, for which much of the credit must go not only to the Lancaster's designer, Roy Chadwick, but also to the Northern Aluminium Co., who designed and produced some of the sections.

As the war progressed so many detailed changes appeared, those externally visible being deletion of the fuselage side windows; enlargement of the bomb aimer's plexiglass "chin" and the fitting of a larger astrodome. And, of course, the numerous additional

and No. 9 Squadron machines which dropped the "Tallboy" bombs had no mid-upper turrets. *W4115*, an early Mk. I, was used to test the FN 79 mid-upper turret.

The post-war B1 (F/E) was fitted with the FN 82 rear turret as standard, and in 1944–45 *LL780/G* was fitted with remotely operated guns in dorsal and ventral barbettes, with a rear sighting position.

FLYING THE LANCASTER

Although of basically sound design, some Lancasters experienced (occasionally total) structural failure early in their careers, particularly during the first year of operations. A number of Mk. Is crashed mainly because design limitations had been grossly exceeded. This may have been because the Lancaster was such a delightfully easy aeroplane to fly; even when fully laden it would answer immediately to finger-tip control. It could be literally thrown all over the sky, and there are instances of Lancasters having been looped and barrel-rolled, both intentionally and otherwise. An experienced pilot could often out-fly and out-manœuvre a fighter as many German fighter pilots found to their cost.

The Lancaster Mk. I was a near-perfect flying machine; fast for its size and very smooth. The view from the cockpit was excellent, and although crew comfort did not compare with that of contemporary American bombers, one will rarely, if ever, hear anything said against a Lancaster by the men who flew them. During the war the casualty rate on Lancasters was considerably less than on any other bomber type, a feature much appreciated by its crews.

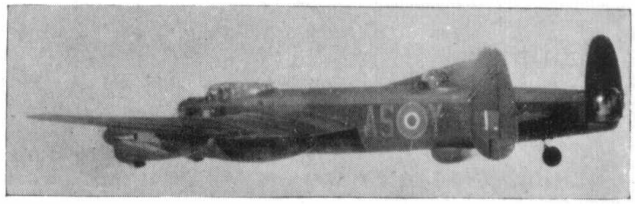
Normal crew was seven—pilot, flight engineer, navigator, wireless operator, rear gunner, mid-upper gunner and bomb aimer, who also operated the front turret. Some special duty squadrons, such as No. 101, carried an eighth crew member to operate radio countermeasure equipment. On certain Pathfinding duties No. 8 Group aircraft carried an extra (known as visual) bomb aimer, and it was standard practice to have two navigators, the second being the H2S "set" operator-cum bomb aimer.

OPERATIONS

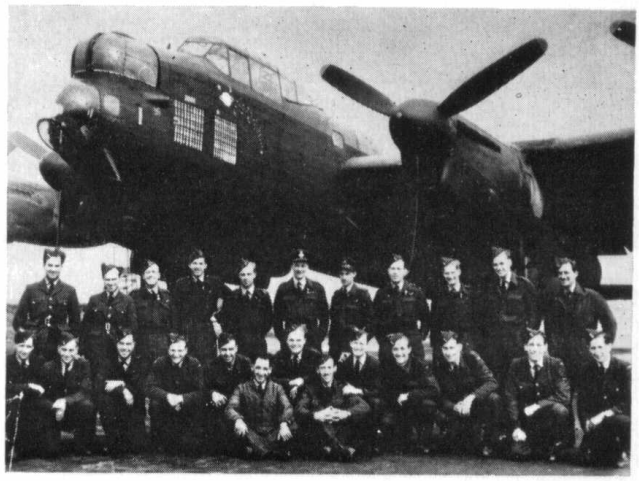
So much has already been written about the operational history of the Lancaster in general, that it is felt only the shortest of résumés is needed for this *Profile*. The achievements of the Lancaster and the men who flew it have been widely acclaimed, and the aircraft has been described as the greatest single factor in winning W.W.II, an exaggeration but a pardonable one.

The first Lancaster Squadron was No. 44 (Rhodesia) based at Waddington, followed closely by No. 97 (Straits Settlement) at Coningsby and Woodhall Spa. The first operation by Lancasters was on 2nd March 1942, when No. 44 Squadron dropped mines

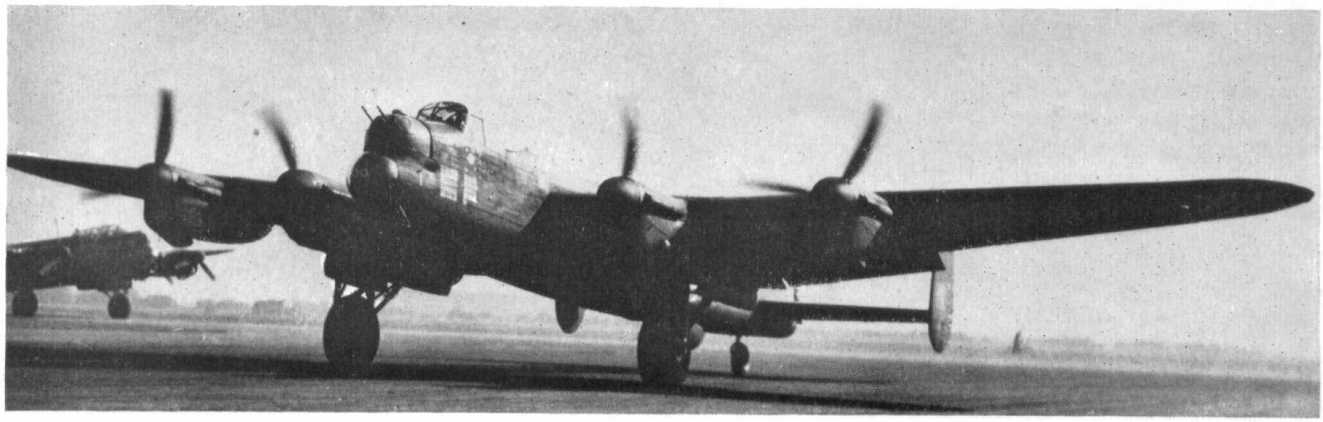
Lancaster B1, LL885, *GI J*, *of No. 622 Squadron, Mildenhall. Seen on its first operational flight to Nuremburg. Went on to fly 113 operations.* (Photo: L. H. Gregson)

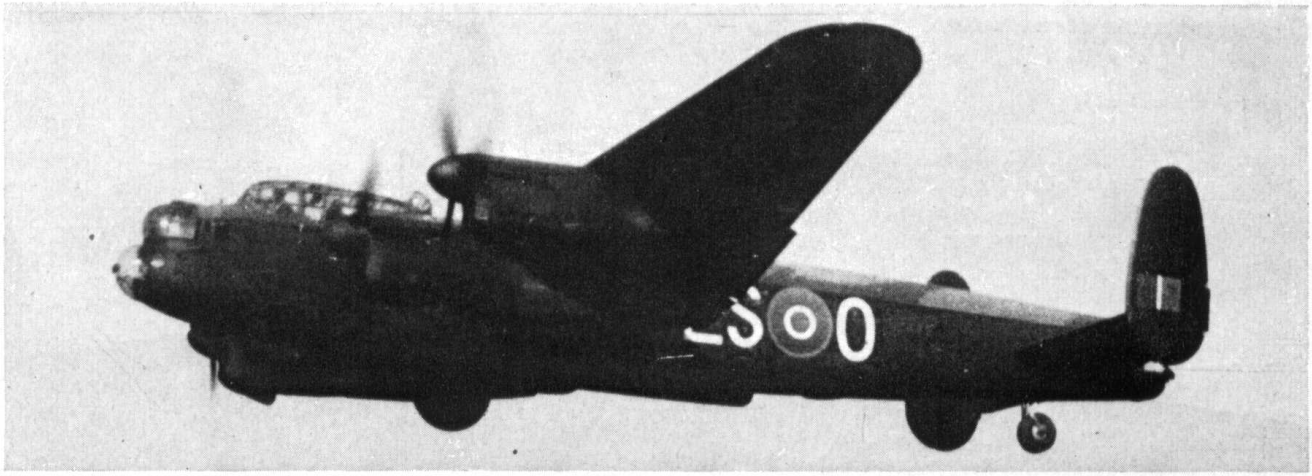


Lancaster B1, LM289, *AS Y*, *No. 166 Squadron, Kirmington. Fitted with ·5-in. Rose-Rice tail turret.* (Photo: G. H. Whowell)



Above and below: *B1*, LM227, *UL I*, *of No. 576 Squadron, Fiskerton, in early 1945 on completion of 92 operations.* (Photo: R. G. Ashford)





Lancaster B1, NG445, *LS O, of No. 15 Squadron, at Mildenhall early in 1946. Note post-war code letters and serial, also bulged bomb bay.* (Photo: J. Chatterton)

in Heligoland Bight. First bombing raid was on Essen on 10th March.

Until early 1943, when the Marks II and III began to enter service, all Lancaster operations were carried out by Mk. Is.

Although designed as a night bomber, the Lancaster I was officially announced after the daylight raid on an engine factory at Augsburg on 17th April 1942 by Nos. 44 and 97 Squadrons led by S./Ldrs. Nettleton and Sherwood. Only five of the twelve Lancasters returned to base, and because of the great risks few other daylight raids were undertaken by Lancasters until later in the war, when the Allies had gained air supremacy over Europe.

On 17th October 1942, however, another spectacular raid took place, partly in daylight, when over 90 Lancaster Is from No. 5 Group Squadrons bombed the Schneider Works at Le Creusot, a trip which involved up to ten hours' flying. Only one aircraft was lost.

W4117, VN-R, of No. 50 Squadron, piloted by F./Sgt. J. E. Taylor (now S./Ldr. D.E.C., D.F.M.) arrived over the target to find the bomb doors would not open, and had to carry its 4,000-lb. load back to base, arriving at Upper Heyford dangerously low on fuel.

The build-up of Lancaster squadrons continued throughout 1942, and by March 1943 there were 18 squadrons using Mk. Is, plus the Heavy Conversion Units, which had begun to receive their first Lancaster Is late in 1942. All aircraft were ex-operational.

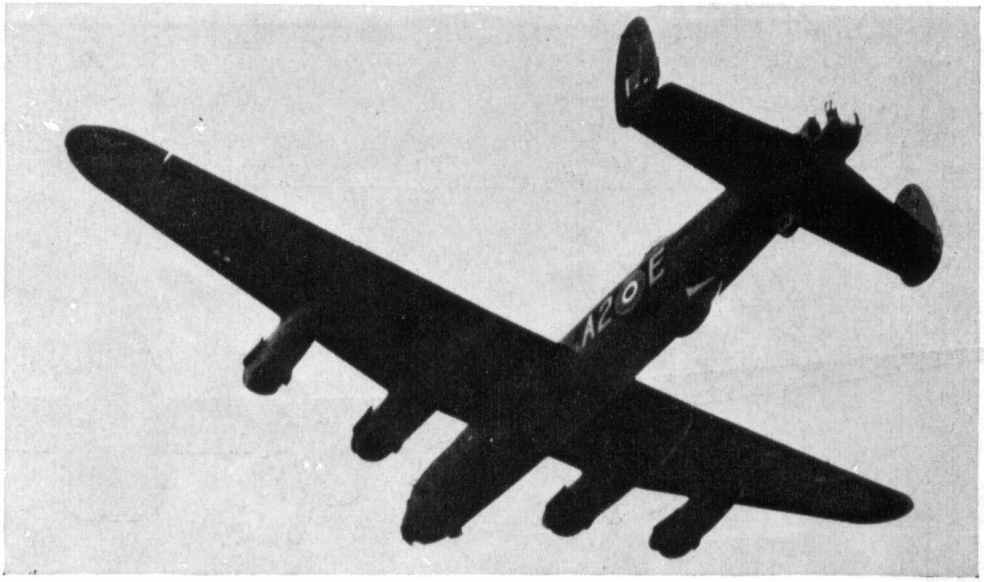
Because of the shortage of Lancasters throughout 1942, most pilots converted on to them from Manchesters on their own squadron's conversion flight. None of the aircraft at that time were dual control, and a pilot's first take-off at the controls could be hazardous, with the Instructor being unable to follow through on dual controls.

One short-legged student, trying to do his first take-off at the controls of a No. 97 Squadron Lancaster I at the Squadron's Conversion Flight at Coningsby, was unable to exercise full rudder control, and in three attempts described three perfect semi-circles on the grass airfield before a very nervous instructor hit upon a solution. The sponge top was taken from a seat-type parachute and used as an additional backrest. The student, Collingwood Smith, had no more trouble and went on to complete a tour of operations with No. 97 and win the D.F.C.

By the end of the European war in 1945 there were about fifty Lancaster squadrons, most of which operated Lancaster Is, usually alongside Mark IIIs and/or Mark 10s.

Most famous of all Lancaster squadrons was No. 617 which, soon after D-Day in 1944, dropped the first 12,000-lb. "Tallboy" bombs, using specially

Continued on page 10.



NG118 *of No. 514 Squadron, "C" Flight, Waterbeach. Photographed on a daylight raid on Calais, October 1944.* (Photo: C. C. Stewart)

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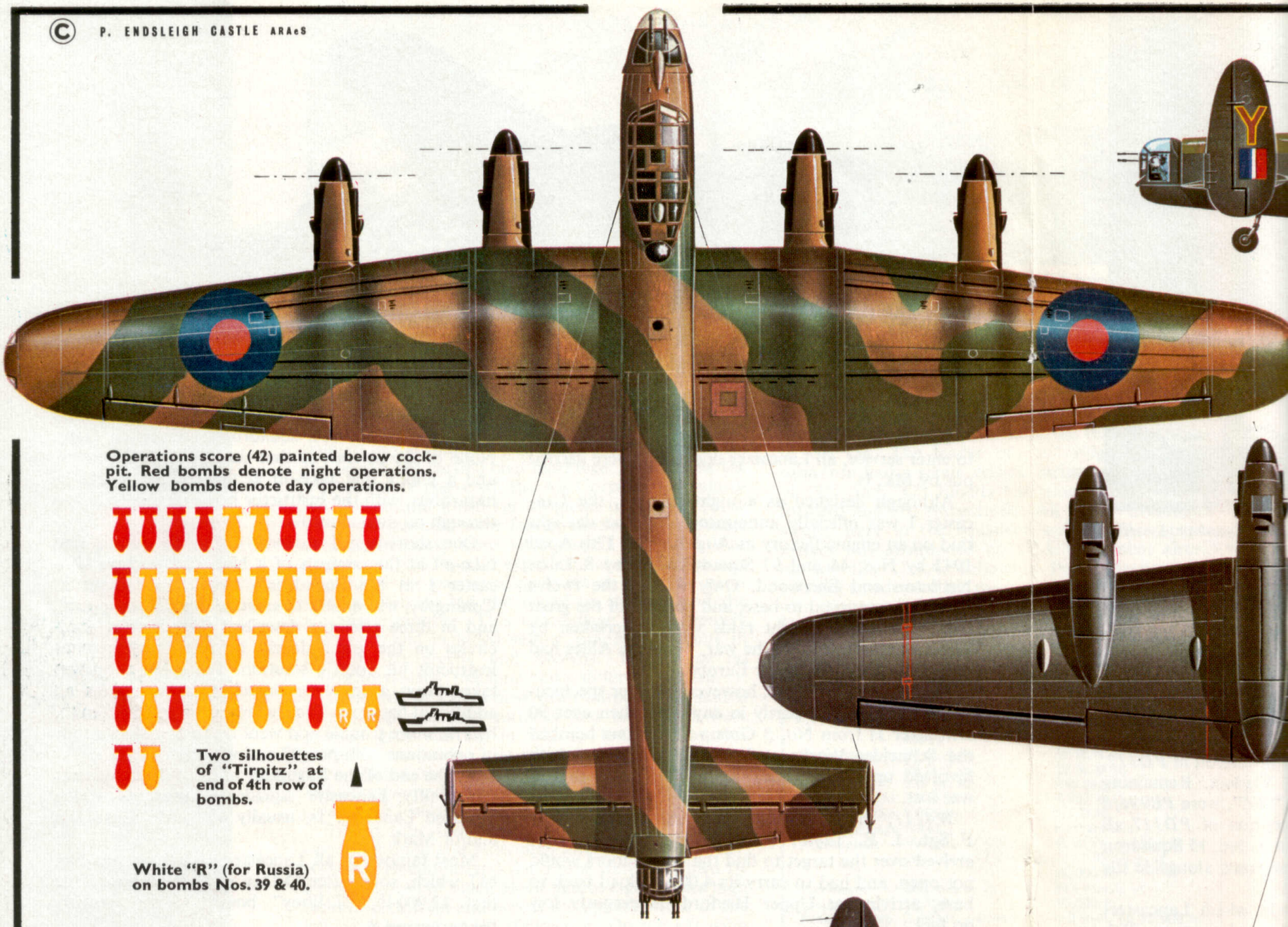
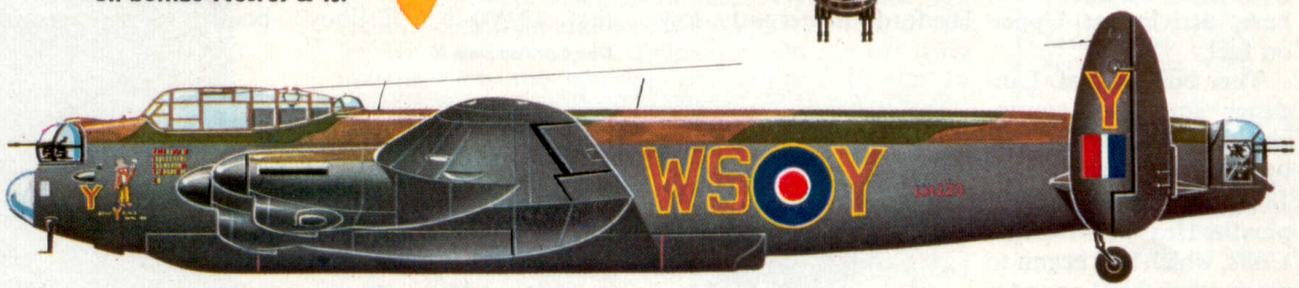
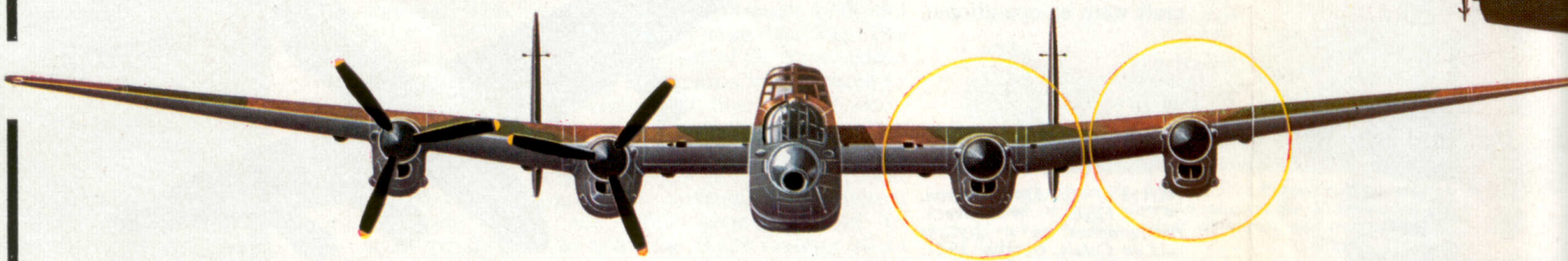


Operations score (42) painted below cockpit. Red bombs denote night operations. Yellow bombs denote day operations.

Two silhouettes of "Tirpitz" at end of 4th row of bombs.

White "R" (for Russia) on bombs Nos. 39 & 40.





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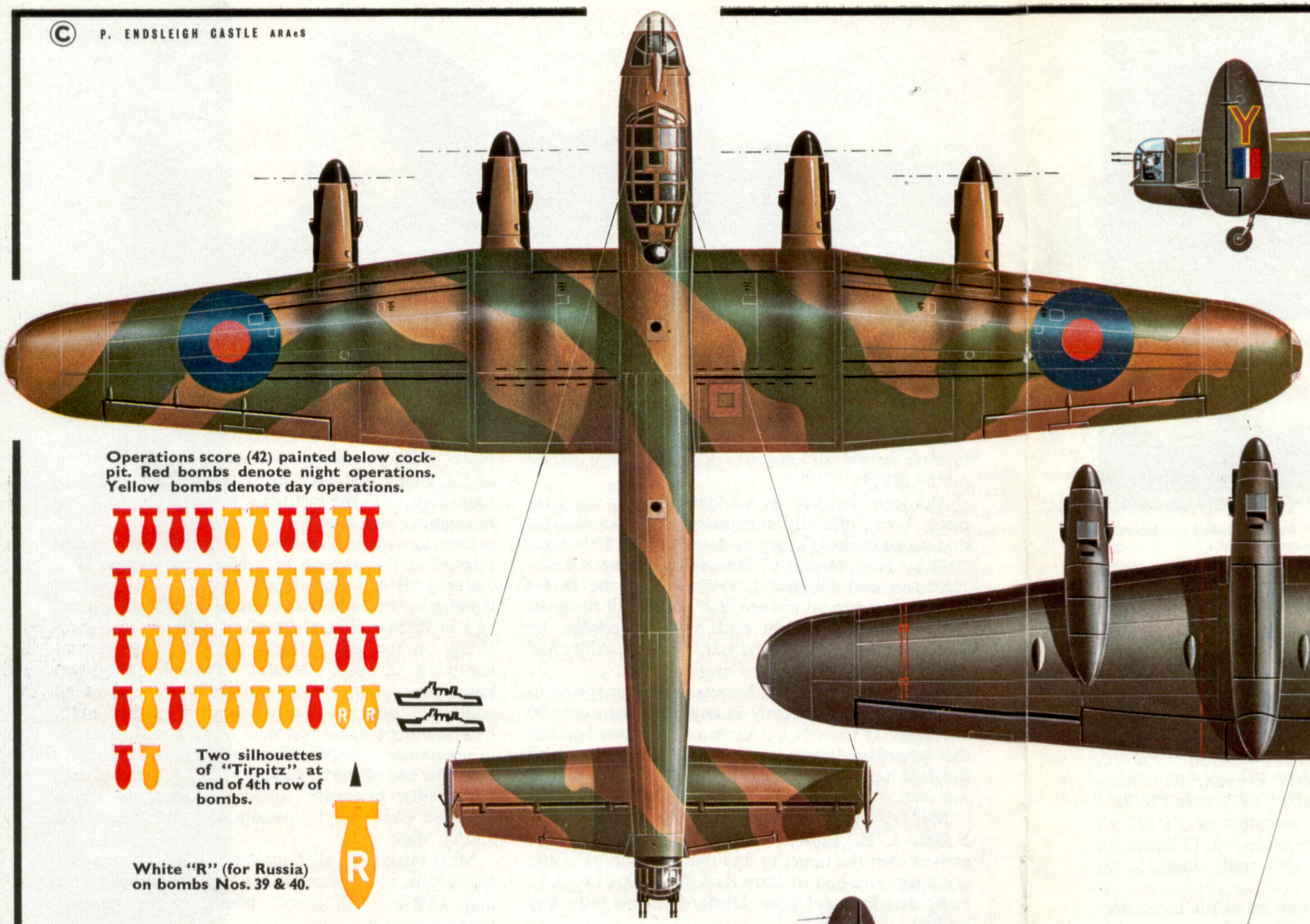
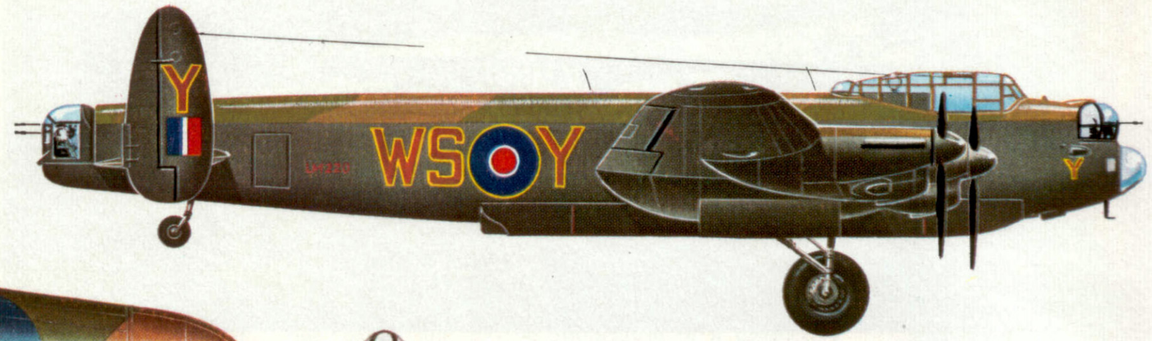
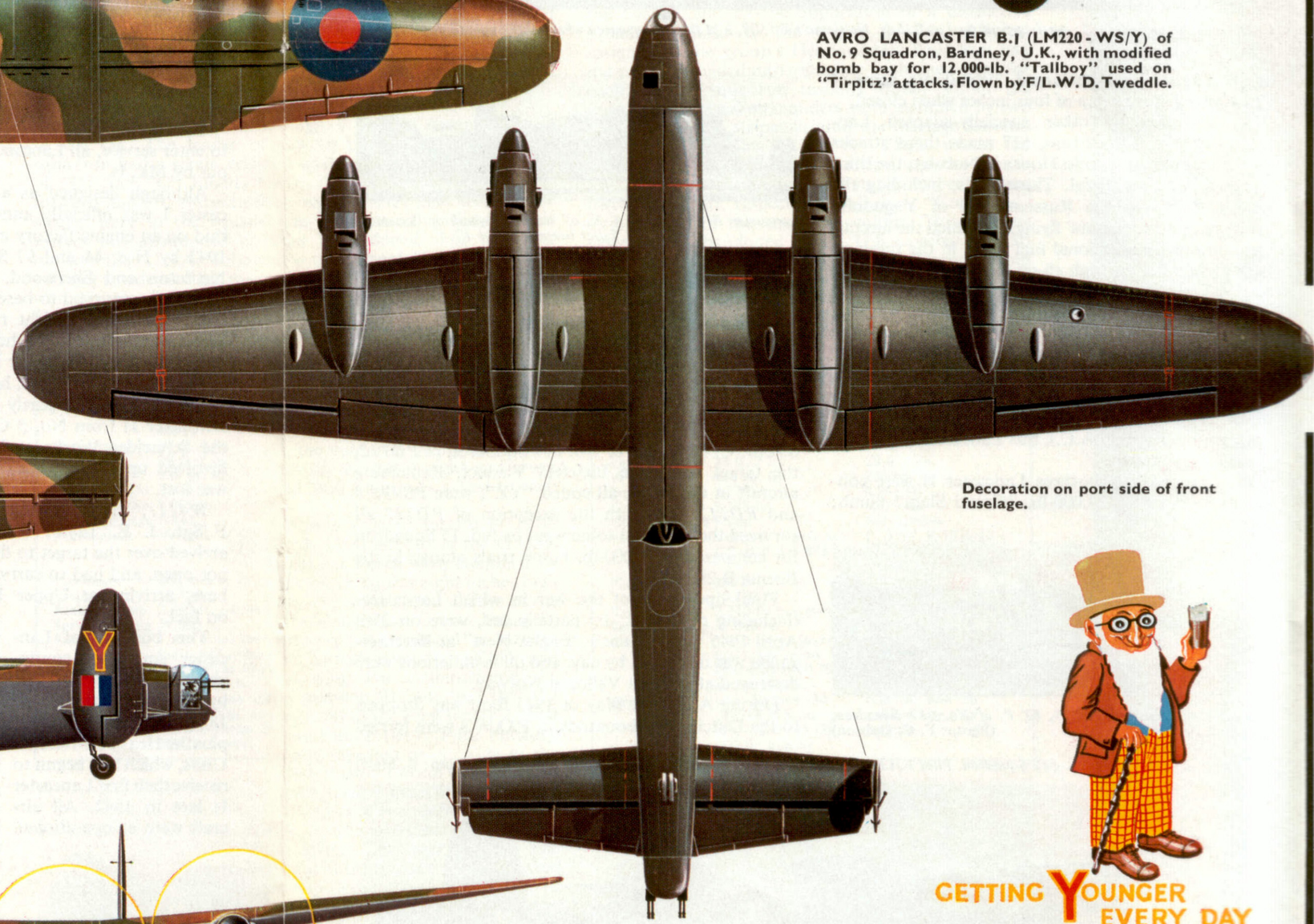




AVRO LANCASTER B.I (LM220 - WS/Y) of No. 9 Squadron, Bardney, U.K., with modified bomb bay for 12,000-lb. "Tallboy" used on "Tirpitz" attacks. Flown by F/L.W. D. Tweddle.



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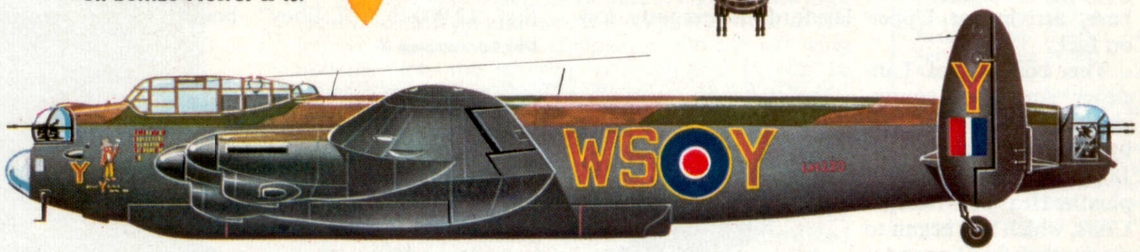
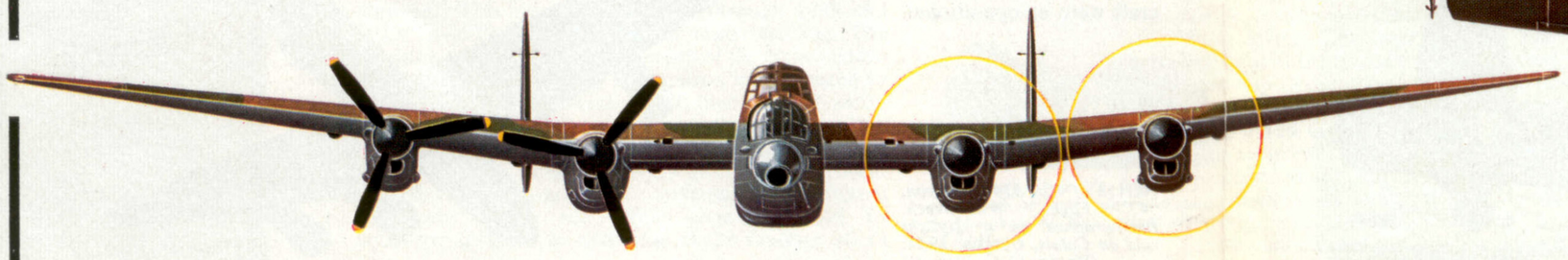
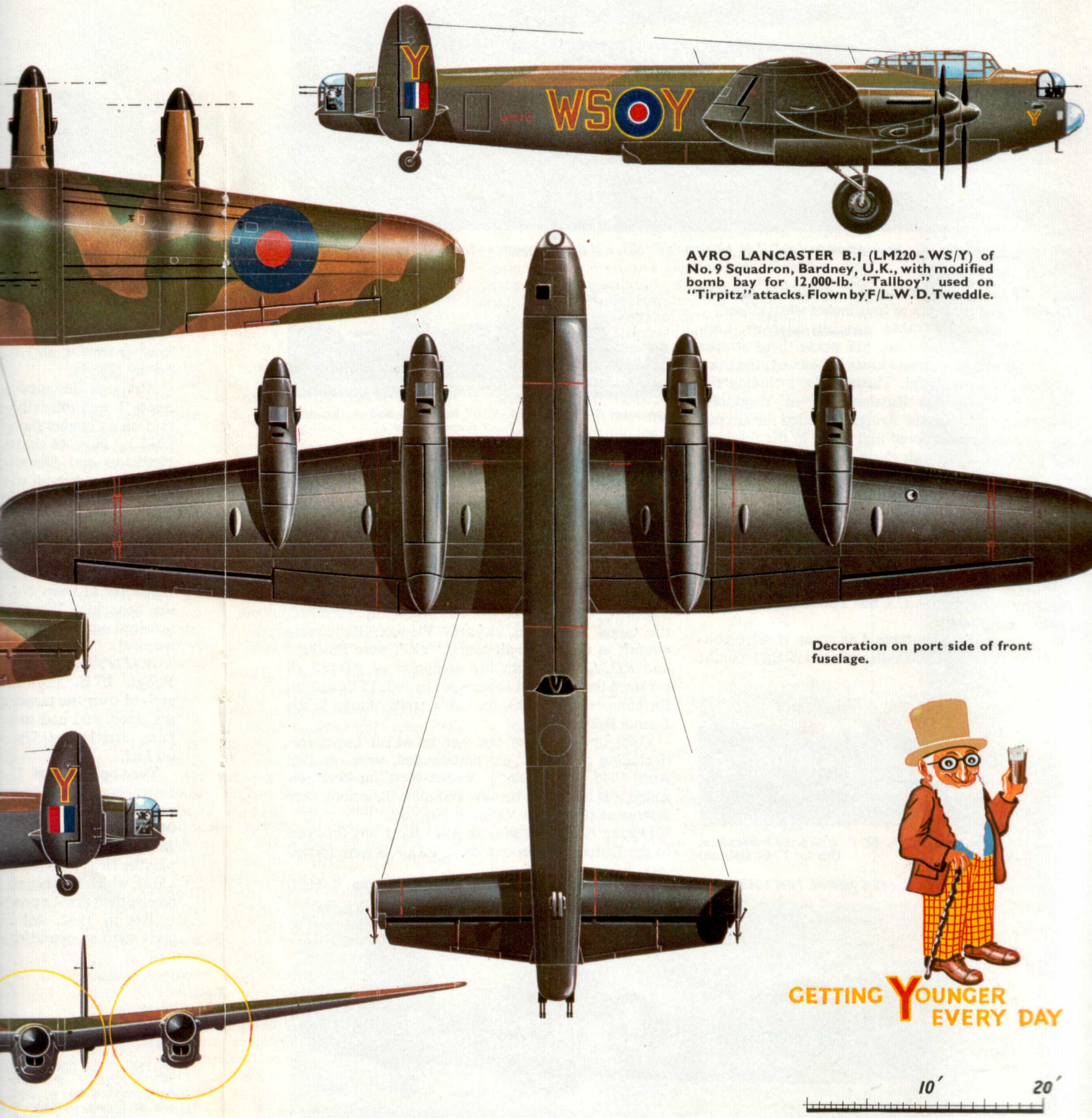




Decoration on port side of front fuselage.

GETTING YOUNGER EVERY DAY

10′ 20′



AVRO LANCASTER B.I (LM220 - WS/Y) of No. 9 Squadron, Bardney, U.K., with modified bomb bay for 12,000-lb. "Tallboy" used on "Tirpitz" attacks. Flown by F/L. W. D. Tweddle.

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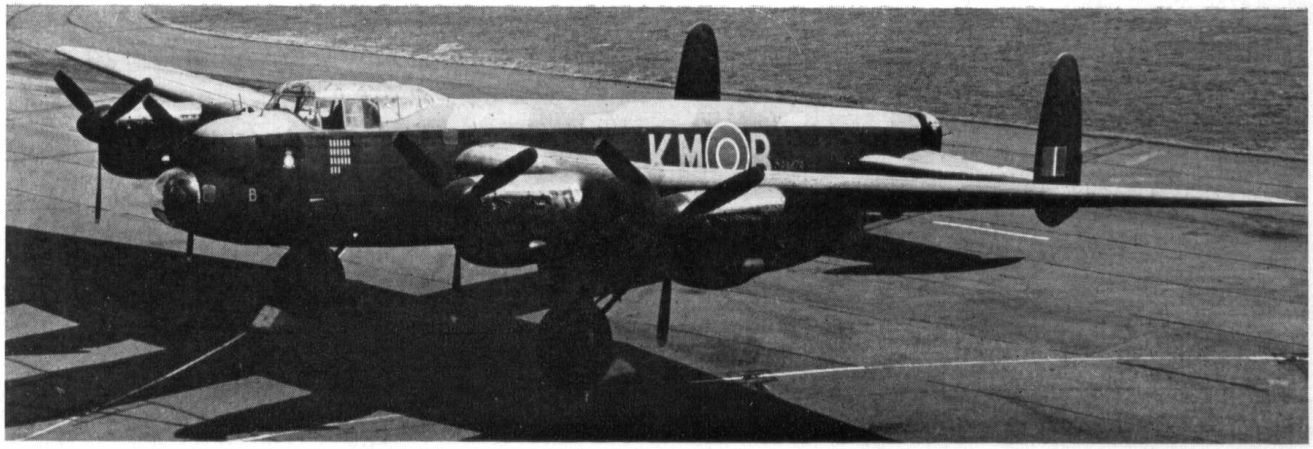


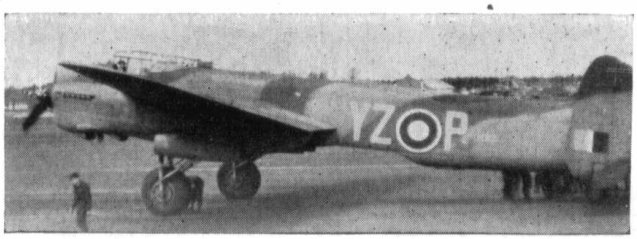
PA474 *seen in August 1965; partly refurbished as S./Ldr. Nettleton's R5508, KM B as it appeared when taking part in the Augsburg raid.* (Photo: B. Goulding)

adapted Mark Is with enlarged bomb doors, some of which would have a gap of four inches when closed.

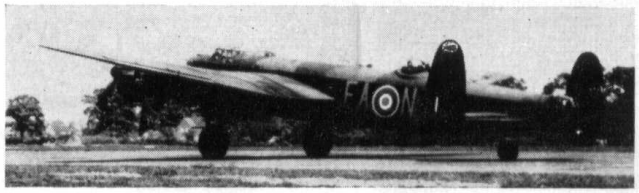
Accompanied by other specially-adapted Lancasters of No. 9 Squadron, 617 made three attacks on the German battleship *Tirpitz* in Norway, the third of which was successful. These raids, including the staging flights to the Russian base of Yagodnik, involved up to 13½ hours' flying, for which the aircraft were fitted with additional fuel tanks in the fuselage. Bearing in mind the high all-up weight, the endurance achieved on these flights was quite phenomenal.

For the *Tirpitz* raid all the "Tallboy" aircraft, originally a mixture of Mark Is and IIIs, were fitted with the higher-powered Merlin 24s and were all re-designated Mark Is. An example was *PB415*, KC-O, of No. 617 Squadron, which started life as a Mark III and became a Mark I. Piloted by F./Lt. Bob Knights (now of B.O.A.C.), this Lancaster flew on all three *Tirpitz* attacks.

In early 1945, thirty-three Lancaster Is were converted to carry the 22,000-lb. "Grand Slam" bomb;



Lancaster B1 (Special) PD133, *YZ P, of No. 617 Squadron, Woodhall Spa, spring 1945.* (Photo: F. C. Dobson)



Lancaster B1, PB873, *EA N, of No. 49 Squadron. Syserton, May 1945. Later became "Thor I".*

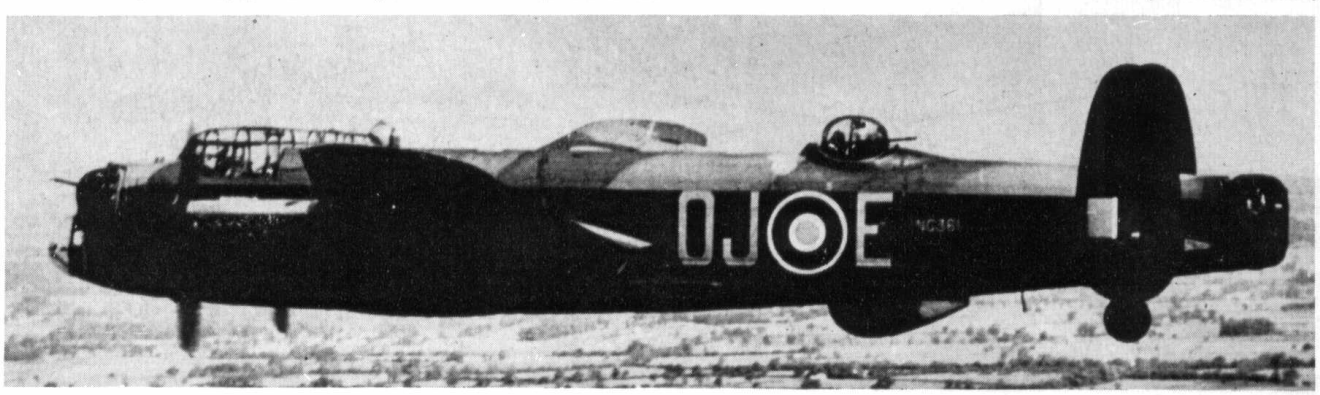
all became B1 (Specials) and were operated by No. 617 Squadron. *PB592/G* and *PB995*, at that time non-squadron aircraft, were the first to carry the huge bomb, which all but equalled the weight of the aircraft. The bombs were considered the ultimate in conventional weapons of air warfare.

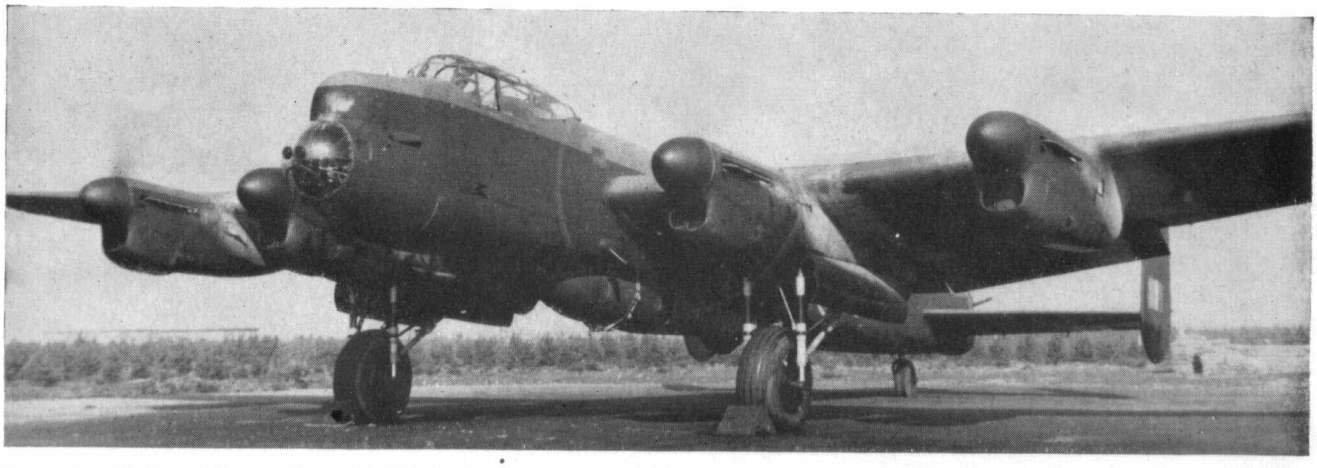
The first live bomb drop took place on 13th March 1945, and the first operational drop was made by S./Ldr. C. C. Calder of No. 617 Squadron in *PD112*, the target being the Bielefeld Viaduct. Remaining aircraft in the series, all coded "YZ", were *PB996/8* and *PD112/139*. With the exception of *PD117* all survived the war, and some went to No. 15 Squadron for comparative 22,000-lb. bomb trials alongside the Boeing B-29.

Final operations of the war in which Lancasters (including many Mk. Is) participated, were on 25th April 1945 when Hitler's "Eagles Nest" at Berchtesgaden was destroyed by day, and oil installations were destroyed at night at Vallo, in Norway.

During April and May of 1945 food was dropped to the Dutch, and thousands of P.O.W.s were ferried

Lancaster B1, NG361, *of No. 149 Squadron. Pilot F./Lt. D. F. Fletcher.* (Photo: B. Male)





Lancaster B1 (Special) carrying a 22,000-lb. bomb. Served with No. 617 Squadron. (Photo: Imperial War Museum)

home from the Continent, each Lancaster carrying 24 passengers. Many Mk. Is also took ground crews and V.I.P.s on "Cooks Tours" of the devastated cities of Germany.

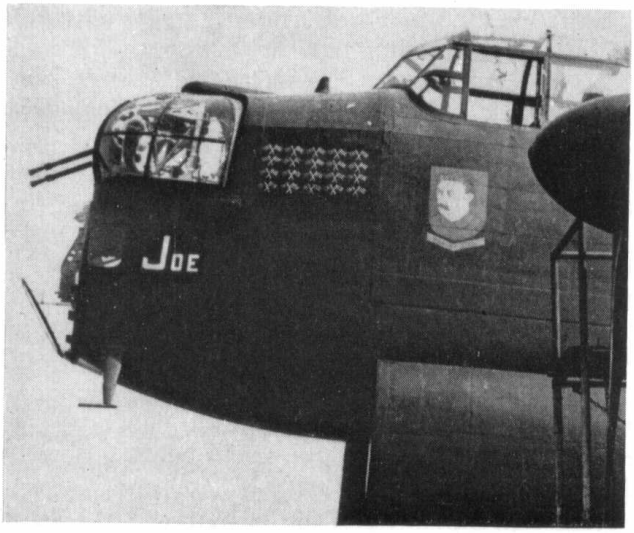
Repatriation of P.O.W.s and British troops in Italy was not completed until October–November 1945.

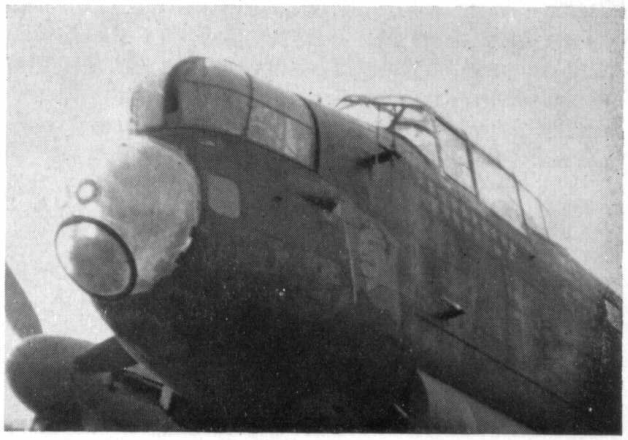
Lancaster Mark Is took part in almost every major bombing raid of the European war from mid-1942 until the end of hostilities, surely few other aircraft played a greater part in achieving the ultimate goal of peace.

POST-WAR

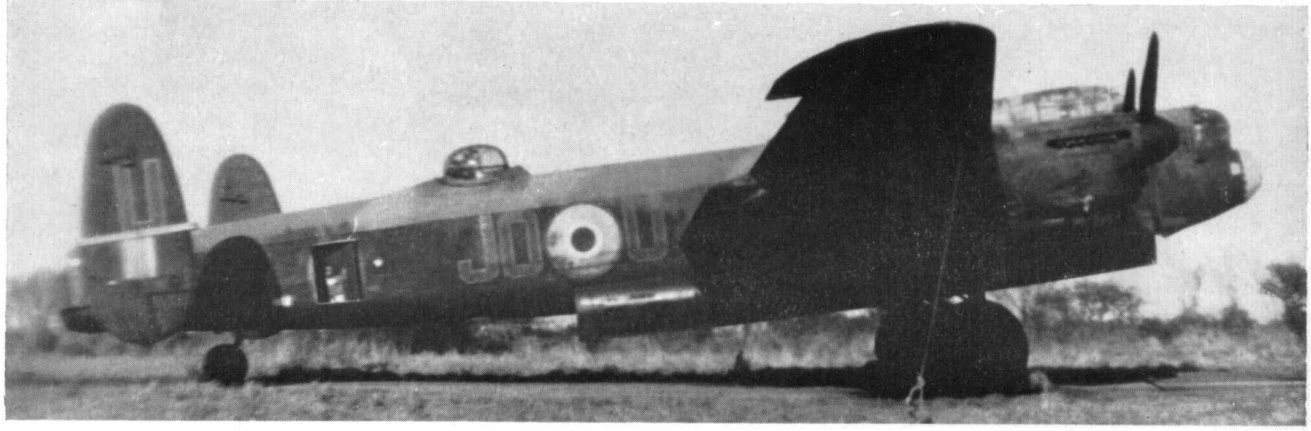
The Lancaster Mark I continued to serve with bomber squadrons until replaced by the B1 (F/E), which, in turn, was gradually replaced by Lincolns between 1946 and 1950. The last Lancaster I *PA427* (actually a PR.I) was not retired from Bomber Command until December 1953.

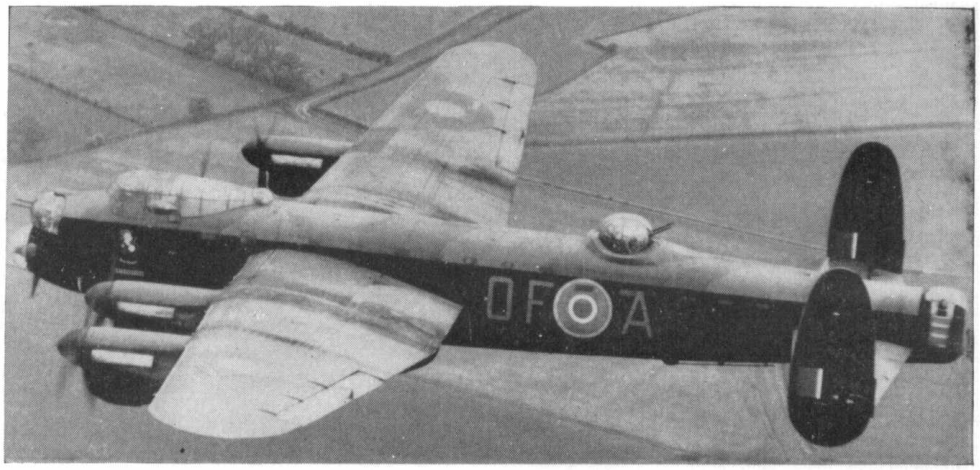
For operations against the Japanese with Tiger Force, late production Lancaster Is were modified as B1 (F/Es), but were not used as intended because of the advent of the atomic bomb. These aircraft, painted white with black undersurfaces, were modified at No. 32 MU and were equipped with additional radio,





Above, left: ED382, *SR J, of No. 101 Squadron. Motif on nose reads "Uncle Joe".* Right: "*Uncle Joe Again*" *(see page 15 for colour side view).* Below: *JO U, "Uncle Joe Again".* (Photos: P. J. R. Moyes)





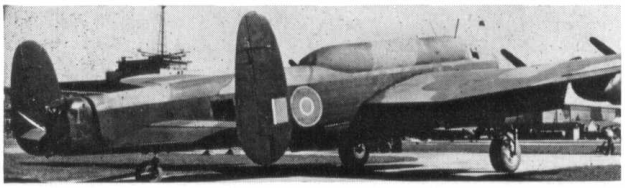
Lancaster B1, OF A "Elizabeth" of No. 97 Squadron, Woodhall Spa, mid - 1942. Named by H.M. Queen Elizabeth on production line.
(Photo: B. Male)

radar and navigation aids to facilitate long-range operations from Pacific bases.

As an experiment two Lancaster Is, *HK541* and *SW244* had been fitted with saddle tanks to carry extra fuel, and were flight tested in India and Australia by 1577 Flight. They were, however, considered too vulnerable to fighter attack and the idea was dropped.

Included among the squadrons operating the B1 (F/E) were Nos. 7, 115, 49, 207 and 35. The latter Squadron's B1s (F/Es) toured the U.S.A. in the summer of 1946, led by W./Cdr. A. J. L. Craig. Some of their aircraft, including *PA411* and *TW656* subsequently served with No. 230 O.C.U., Lindholme, coded A3-U and A3-F respectively, still in Far East colours and still bearing the autographs of famous film stars inscribed on them during the American tour.

Two Lancaster B1s, *PD328* (Aries of the Empire Air Navigation School, Shawbury) and *PB873* (Thor of the Empire Air Armaments School, Manby) became famous for round-the-world and trans-polar flights in 1945 and 1946.



Lancaster with "Tiger Force" saddle tank.
(Photo: Imperial War Museum)

Very few Mark Is served with Coastal Command, which was almost wholly equipped with Mark IIIs, although No. 236 O.C.U. used one or two Mark Is at Kinloss, examples being *SW302* and *TW881*.

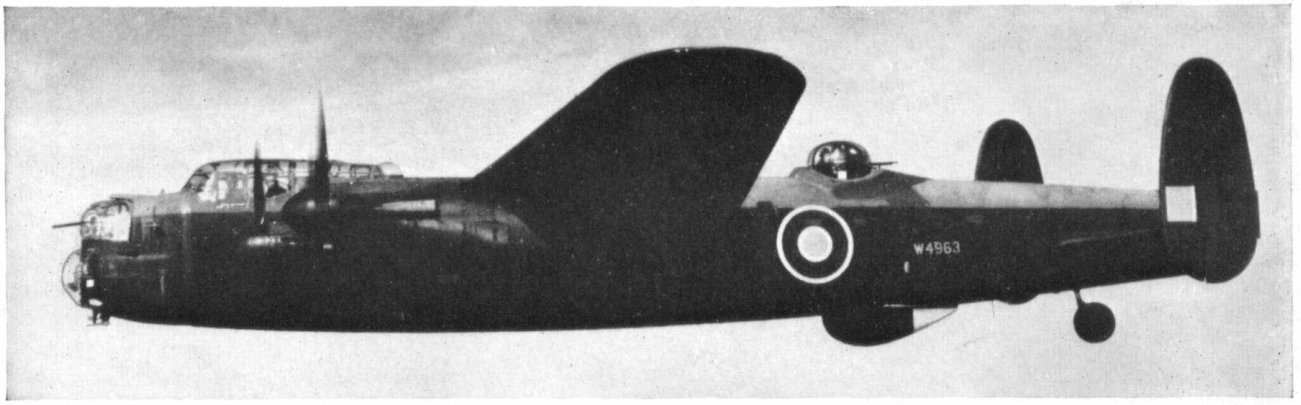
In 1947–48 No. 82 Squadron was equipped with yet another variation of the basic Lancaster I known as the PR (Photographic Reconnaissance) I. This type was painted silver overall and lacked gun turrets, and with them the squadron carried out an aerial survey of Central and East Africa. One of its Lancasters, *PA474* M, was subsequently taken over by the Ministry of Aviation and until December 1963, still bearing No. 82 Squadron's markings, flight tested the Handley Page laminar-flow wing sections from the College of Aeronautics, Cranfield.

On 18th August 1965, after having been painted in wartime camouflage, *PA474* was flown from Henlow to R.A.F. Waddington, where it was adopted, very appropriately by No. 44 (Rhodesia) Squadron, the first of all squadrons to operate the Lancaster. It has become KM-B, and it is hoped to maintain it in flying condition.

Two other Lancaster Is are preserved—*R5868* at R.A.F. Scampton and *W4783* at Sydney, Australia. Both were veterans of many raids on Germany and their histories are already well known. In addition the nose of *DV372* (PO F of No. 467 Squadron) is in the Imperial War Museum, London.

Probably the last Lancaster to serve with the Royal

Lancaster B1, W4963, *used for trials at A. & A.E.E., Boscombe Down. Possibly the first B1 to be fitted with H2S.*
(Photo: Imperial War Museum)



Lancaster B1, R5668, *GP N*, *of 1661 C.U., Winthorpe, February 1944.*
(Photo: R. Boden)

Air Force was *TW669*, which was used as a Fighter Command photographic aircraft until late 1954, having previously served with No. 82 Squadron.

© *B. Goulding & M. Garbett, 1966*

SUMMARY OF MK. I PRODUCTION

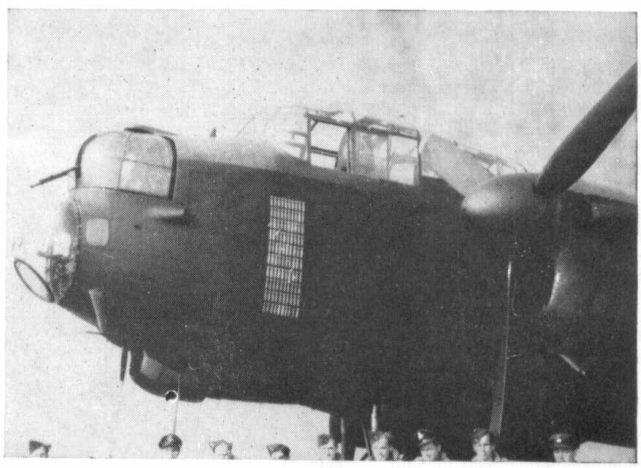
Avro—Chadderton	839	
Yeadon	53	
		892
Vickers Armstrong—Chester	300	
Castle Bromwich... ...	235	
		535
Armstrong Whitworth—Baginton		**911**
Austin—Longbridge		**150**
Metrovick—Mosley Road, Manchester		**941**
		3,429
Prototypes		**2**
		3,431

AVRO

Manchester (Chadderton, final assembly Woodford)

L	... ...	7527–7549	ED	... ...	521–522
		7565–7584			525
					528
R	... ...	5482–5517			533
		5537–5576			537
		5603–5640			548
		5658–5703			550
		5724–5763			552
					554
W	... ...	4102–4140			567
		4154–4201			569
		4230–4279			586
		4301–4340			588
		4355–4384			591
					594
ED	... ...	303–334			600–601
		347–361			604
		363–370			610
		372–377			615
		379–382			622
		384–386			631
		388–389			650
		391–392			661
		394–395			692
		409			703
		411–412			715
		414			732
		418			735
		420			749
		422			751
		425			754–755
		430			757–758
		436			761–763
		439			766
		443			769–770
		446–447			773–774
		451			777–778
		*474			780–782
		*485			
		498	JB	... ...	127

LM	301–310	Avro, Yeadon
ME	328–330, 350, 352, 372–375, 383–384, 419–421, 431–440, 445–451, 455–458, 470, 475–477, 479–480, 482, 490, 495	Avro, Yeadon
PB	592	Built as Mk. III. Converted to Mk. I (Special)
PB	643–647, 671–674, 686–692, 695–696	Avro, Chadderton
	703–705, 708, 721–727, 730–732, 734–757, 759–768, 780–823, 836–881, 893–922, 924–936, 949–959, 961, 981–990, 995–998	Avro, Chadderton
	B1 (Special)	
PD	112–139	Avro, Chadderton
B1	(Special)	
NN	694–726, 739–786, 798–816	Austin Motors, Longbridge
NX	548–589, 603–610	Austin Motors, Longbridge



ME746 which completed 116 operations.
(Photo: Imperial War Museum)

Armstrong Whitworth (Baginton)

LL 740–758, 771–813, 826–867, 880–923, 935–977 } A.W.A.

LM 100–142, 156–192, 205–243, 257–296 } A.W.A.

NF 906–939, 952–999 } A.W.A.

NG 113–149, 162–206 } A.W.A.

218–259, 263–308, 321–367, 379–421, 434–469, 482–503 } A.W.A.

RF 120–161, 175–197 } A.W.A.

SW 296–316 A.W.A.

TW 647–671, 858–873, 878–911 } A.W.A.

METROVICK (MOSLEY ROAD, MANCHESTER)

Final assembly by Avros' at Woodford except the four batches stated

R 5842–5868, 5888–5917 } Metrovick

W 4761–4800, 4815–4864, 4879–4905, 4918–4967, 4980–4982 } Metrovick

DV 277–282 This batch completed by Vickers-Armstrong.

DV 291–297, 299–309, 311–312, 324–345, 359–382, 385–392, 393–394, 396–407 } Metrovick

ME 554–596, 613–650, 663–704, 717–759, 773–814, 827–868 } Metrovick

PD 198–239, 252–296, 309–349, 361–404, 417–444 } Metrovick

RA 500–547, 560–607, 623–627, 787–795 } Metrovick

RA 796 Metrovick
This aircraft's final assembly by Vickers-Armstrong, Chester.

RA 797–799, 800–806 } Metrovick
These aircraft's final assembly by Vickers-Armstrong, Chester.

SW 243–279

TW 915–929 Metrovick
These aircraft's final assembly by Vickers-Armstrong, Chester.

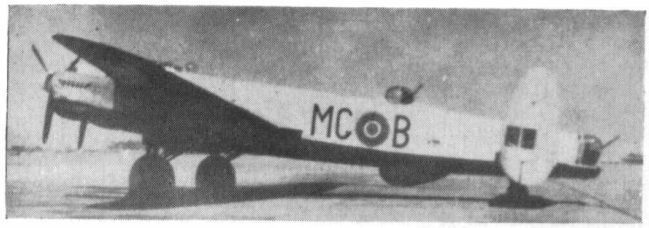
VICKERS-ARMSTRONGS

HK 535–579, 593–628, 644–664, 679–710, 728–773, 787–806 } Castle Bromwich

PA 158–198, 214–239, 252–288 } Chester

PA 303–351, 365–396, 410–452, 473–478, 509 } Chester

PP 663–695, 713–758, 772–792 } Castle Bromwich



Lancaster B1 (FE), TW892, *of No. 7 Squadron, M.E., Shaluifa 1948–49.*

ARGENTINE AIR FORCE

All aircraft prepared at Langar, near Nottingham, 1948–49

B.031	PA 375	B.036	PA 349	B.041	RA 625
B.032	PA 376	B.037	PA 344	B.042	RA 798
B.033	PA 377	B.038	PA 369	B.043	RA 788
B.034	PA 350	B.039	PA 346	B.044	RA 789
B.035	PA 348	B.040	PA 365	B.045	PA 378

EGYPTIAN AIR FORCE

All aircraft prepared at Langar 1950

1801	PA 476	1804	TW 893	1807	TW 890
1802	PA 441	1805	PA 435	1808	SW 313
1803	SW 308	1806	PA 391	1809	TW 656

ROYAL SWEDISH AIR FORCE

Originally held at Langar as reserve for Argentine contract. Modified by Air Service Training and fitted with Stovern jet engine in bomb bay, 1950

80001 RA 805

FRENCH NAVAL AIR ARM (L'AERONOVALE)

Aircraft modified to full ASR standard at Langar and Woodford 1952–53

WU 02	SW 297	WU 33	PA 477	WU 44	RA 793
WU 17	TW 655	WU 34	PA 426	WU 45	TW 918
WU 24	PA 389	WU 35	PA 452	WU 46	PA 429
WU 25	PA 387	WU 36	PA 392	WU 47	TW 920
WU 26	RA 797	WU 37	TW 922	WU 48	TW 921
WU 27	TW 651	WU 38	PA 412	WU 49	RA 627
WU 28	TW 648	WU 39	PA 416	WU 50	RA 795
WU 29	PA 425	WU 40	PA 432	WU 51	RA 796
WU 30	RA 787	WU 41	TW 928	WU 52	RA 800
WU 31	RA 799	WU 42	TW 915	WU 53	TW 927
WU 32	PA 395	WU 43	PA 431		

WU 27, WU 41 and WU 43 served with Escadrille de Servitude, Noumea, until only two years ago.

TEST-BEDS

In the post-war era, the Lancaster proved an ideal engine test-bed and Mark Is used for this purpose included:

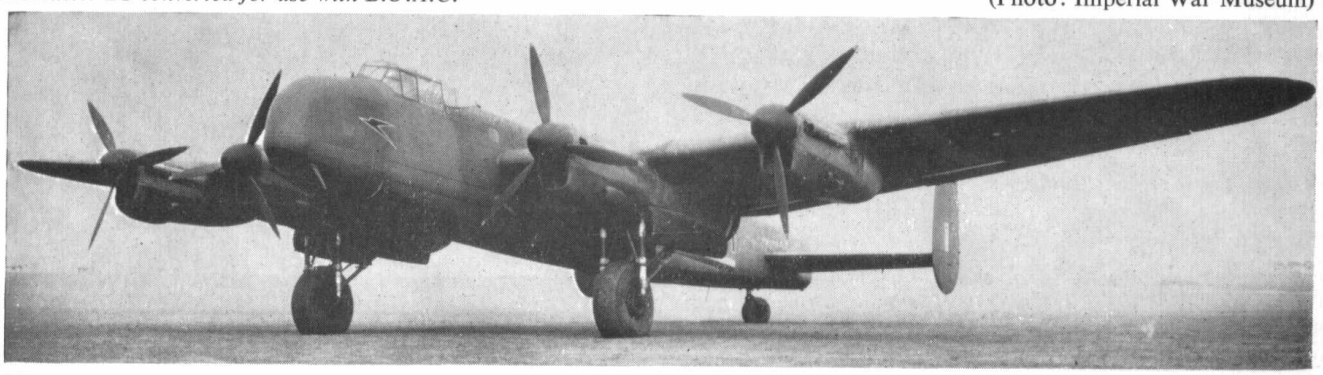
NG 465—Rolls-Royce Dart in nose.
TW 911—Armstrong Siddeley Pythons outboard.

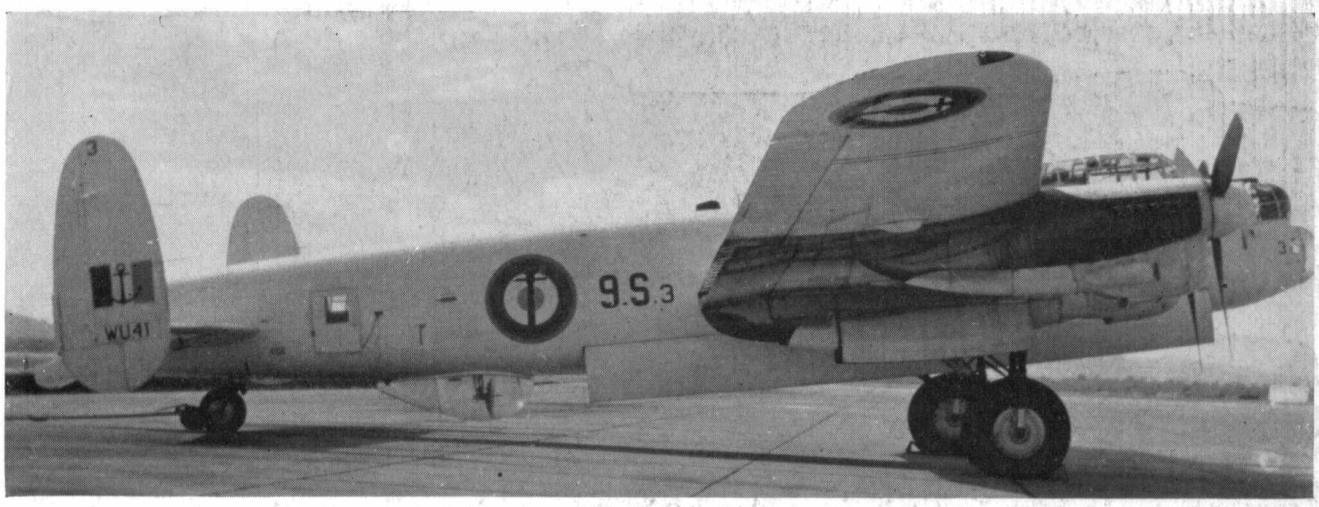
CIVIL LANCASTER Is

These aircraft played a vital part in the proving of civil air routes prior to the introduction of the Lancastrian. The Flight Refuelling aircraft pioneered the in-flight refuelling methods widely used today.

G-AGJI	DV 379	B.O.A.C.
G-AGUN, G-AHVN	PP 744	British South American Airways, B.O.A.C., Flight Refuelling.
G-AHJT	LL 809	Flight Refuelling.
G-AJWM	PP 741	B.E.A. and Alitalia crew trainer.
G-AKAB	PP 739	Skyways crew trainer.

Lancaster B1 converted for use with B.O.A.C. (Photo: Imperial War Museum)





Lancaster BI, TW928, *WU 41 of Flotille 9 S (Search), Escadrille de Servitude. Based at Noumea, New Caledonia.*

G-AKAJ	HK	557	Flight Refuelling.
G-AKAK	PP	743	Flight Refuelling.
G-AKAL	PP	742	Flight Refuelling.
G-AKAM	PP	734	Flight Refuelling.
G-AGUJ	PP	689	B.S.A.A.C. freighter.
G-AGUK	PP	688	B.S.A.A.C. freighter.
G-AGUL	PP	690	B.S.A.A.C. freighter.
G-AGUM	PP	751	B.S.A.A.C. freighter.
G-AGUO	PP	746	B.S.A.A.C. freighter.

Lancaster Mk. I R 5727, used as the Canadian pattern aircraft, subsequently became CF-CMS of Trans-Canada Airlines.

Sqdn.	Code Letter	Sqdn.	Code Letter
7	MG (XU initially)	195	A4 & JE
9	WS	207	EM
12	PH & GZ	214	QN
15	LS & DJ	218	HA
35	TL	227	9J
44	KM	300	BH
49	EA	405	LQ
50	VN	408	EQ
57	DX	424	QB
61	QR	427	ZL
75	AA & JN	429	AL
82	Nil (DR1 only)	433	BM
83	OL	434	IP & WL
90	WP	460	UV & AR
97	OF	463	JO (PO initially)
100	HW	467	PO
101	SR	514	JI & A2
103	PM	541	Nil
106	ZN	550	BQ
115	KO, A4 & IL	576	UL
138	AC & NF	582	60
148	AU	617	AJ, KC & YZ
149	OJ & TK	619	PG
150	IQ	622	GI
153	P4	625	CF
156	GT	626	UM
166	AS	630	LE
170	TC	635	F2
186	XY & AP	683	Nil (PR1 only)
189	CA		

VETERAN MARK Is

At least 11 Mark Is completed 100 operations as follows:

	Serial	Sqdns.—Wartime only	Code Letters	Date First on Charge	No. of Ops.
1	R5868	83	OL-Q	6/42	137
		467	PO-S	9/43	
2	W4964	9	WS-J	4/43	106
3	DV302	101	SR-H	11/43	121
4	ED588	97	OF-	2/43	At least 100
		50	VN-G	3/43	125
5	LL806	15	LS-J	4/44	134
6	LL843	467	PO-	2/44	118
		61	QR-H	7/44	
7	LL885	622	GI-J	3/44	113
8	LM227	576	UL-I (i.e.: I-item)	6/44	100
9	ME746	166	AS-C R2	4/44	116
10	ME758	12	PH-N	4/44	108
11	ME803	115	KO-L, A4-D & IL-C	5/44	105

V.C.s

Three V.C.s were won on Lancaster Is as follows:

Serial	Code GK	Name	Date of Action	Duty	Sqdn.
R5508	KM/B	S./L. J. D. Nettleton, D.F.C.	17/4/42	Pilot	44 Sqdn.
PD377	WS/U	F./S. G. Thompson	1/1/45	W./Op.	9 Sqdn.
ME669	ZN/0	Sgt. N. C. Jackson	26/4/44	F./Eng.	106 Sqdn.

LANCASTER I SPECIFICATION

Dimensions: Span 102 ft.; tail-up length 69 ft. 6 in.; tail-up height 20 ft. 6 in.

Weight:		*BI Specials*
Empty	37,000 lb.	35,500 lb.
Normal loaded	65,000 lb.	72,000 lb.
Max. bomb load (without special mods.)	18,000 lb.	22,000 lb.
Fuel (2,154 gallons) ...	15,509 lb.	1,675 gallons
Oil (150 gallons)	1,350 lb.	150 gallons

Provision for 2 × 400-gallon overload tanks in bomb bay or fuselage.

Performance: Normal outbound, fully loaded, climb and cruise, 170 m.p.h. up to 15,000 ft. then 160 m.p.h. up to 22,000 ft. (normal ceiling). Max. level 275 m.p.h., fully loaded at 15,000 ft.; 287 m.p.h. empty; 245 m.p.h. fully loaded at sea level. Max. diving 360 m.p.h. *After bombs gone:* Normal cruising 200 m.p.h.; normal stalling (50,000 lb.) 92 m.p.h.; range 2,530 miles with 7,000-lb. load; 1,730 miles with 12,000-lb. load; B1 specials 1,550 miles at 15,000 ft. at 200 m.p.h.

Engines: 1942—4 × Rolls-Royce Merlin 20s; 1942–44—4 × Merlin 22s; 1944–45—4 × Merlin 24s.

Armament (all turrets by Frazer Nash except for a few special installations such as the Rose-Rice rear turrets): Front turret—FN 5 2 × ·303 Browning machine guns; mid-upper—FN 50 2 × ·303 Browning machine guns; rear—FN 20 4 × ·303 Browning machine guns; rear (later production)—FN 121 4 × ·303 Browning Mk. II machine guns; ventral (few a/c only)—FN 64 2 × ·303 Browning Mk. II machine guns. Also some single ·5 Browning guns fitted ventrally. B/I (F/Es) fitted with FN 82 rear turret with 2 × ·5 Browning machine guns.

Bomb load: Max. 18,000 lb. (22,000 lb. on B1 (specials). All Lancaster Is could carry 4,000-lb. bomb, and from mid-1943 most could carry 8,000-lb. bomb. Later aircraft could carry a 12,000-lb. bomb (not to be confused with 12,000-lb. "Tallboy").

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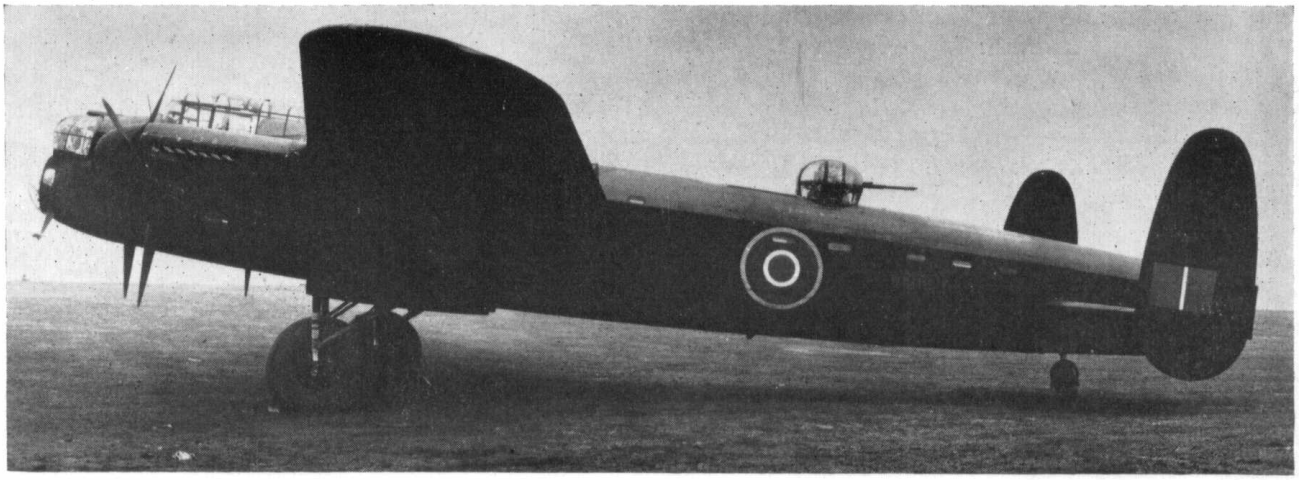


W4115, *a Lancaster Mk. I (FN79) used for trials at A. & A.E.E., Boscombe Down.* (Photo: Imperial War Museum)

bumps, blisters and pimples which appeared as radar and more advanced radio aids were fitted.

The ventral H2S blister became the most notable of the additions, all of which served to increase weight and drag. Some Lancaster Is were fitted with bulged bomb bay doors for the carriage of larger bombs. This modification first appeared on *DG595*.

Apart from fabric-covered ailerons the Lancaster I was of all-metal construction and was built in sub-sections to facilitate production and final assembly.

In 1942 it was decided to build the Lancaster in Canada to supplement home production. *R5727*, a standard Mark I, was chosen as the pattern machine and in August 1942 it became the first Lancaster to fly the Atlantic. It was piloted by an American, Clyde Pangborn, who delivered it to Victory Aircraft at Malton, where 430 Lancaster Mark 10s were subsequently built for the R.A.F. and R.C.A.F.

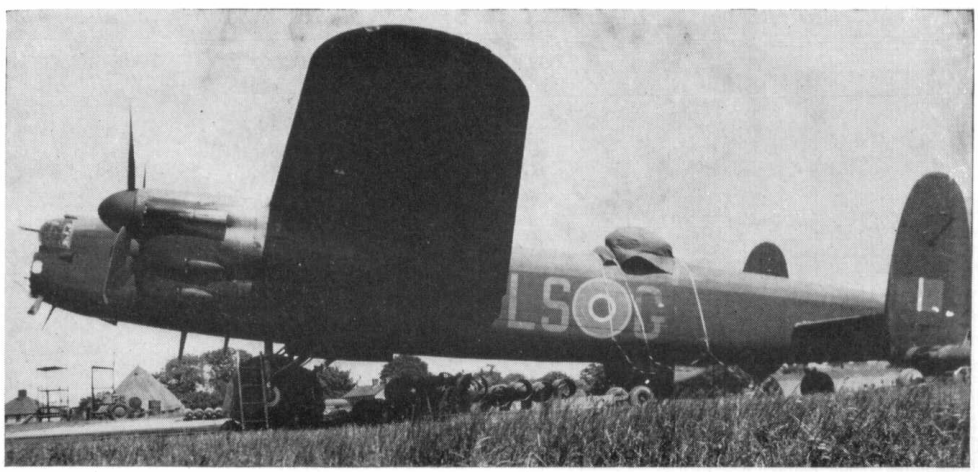
R5727 was one of the batch of early production Mark Is which were fitted with a ventral gun installation. This was generally removed at an early stage of the aircraft's operational career. Although various trials were continued at A.F.D.U. Duxford, No. 5 Group soon dispensed with the ventral gun but several squadrons tried their own experiments in an endeavour to overcome the menace of the Ju 88 and Bf 110 night fighters fitted with upward-firing guns. As late as 1944 the famous *W4964* WS-J "Johnny Walker" of No. 9 Squadron was fitted with a cannon mounting in the floor just aft of the bomb bay. First tried out on 8th May 1944 over Lanvéoc, Sergeant Langford, flying specially to man the gun, shot out a searchlight, an event which resulted in a new symbol appearing on the already impressive array on *W4964*'s nose.

No. 1 Group persisted with various ventral gun positions for some time, but by far the biggest user appears to have been No. 3 Group. The fitting of H2S in most of the other Group's aircraft precluded the fitting of such guns in any numbers, but in No. 3 Group many aircraft were fitted with GH and the space taken up by a ventral gun, usually a ·303-in. and sometimes a ·5-in. machine gun. A typical squadron thus equipped was No. 622 at Mildenhall, examples being *HK651* GI-B and *HK615* GI-Z. With the gun installed an eighth crew member was carried.

Other armament continued as more or less standard on the Mk. I throughout the war, though some aircraft were later fitted with the Rose-Rice rear turret mounting 2 × ·5s. A few later production Lancasters were fitted with a new FN 82 rear turret, also mounting 2 × ·5-in. guns.

Pending the arrival of the Mk. VII, which was to have a Martin mid-upper turret moved forward to a position over the bomb bay, fifty Austin-built Lancasters were completed as non-standard B. Mk. Is and had a normal Frazer Nash turret installed over the bomb bay. The fifty aircraft were serialled *NX548–589*, and *NX603–610*. They were unpopular with gunners, however, as the bulky turret blocked the walk-way, and the heavy-statured airman found it difficult to negotiate.

The B1 (Specials) of No. 617 Squadron had front and mid-upper turrets removed to save weight, and the 617



Lancaster B1, LM110, *LS G, of No. 15 Squadron, Mildenhall. Pilot F./Lt. M. Johnston, R.A.A.F.*
(Photo: E. G. Marsh)

Lancaster B.I, *RF141*, No. 463 Squadron, R.A.A.F., Skellingthorpe, Lincs., 1945.

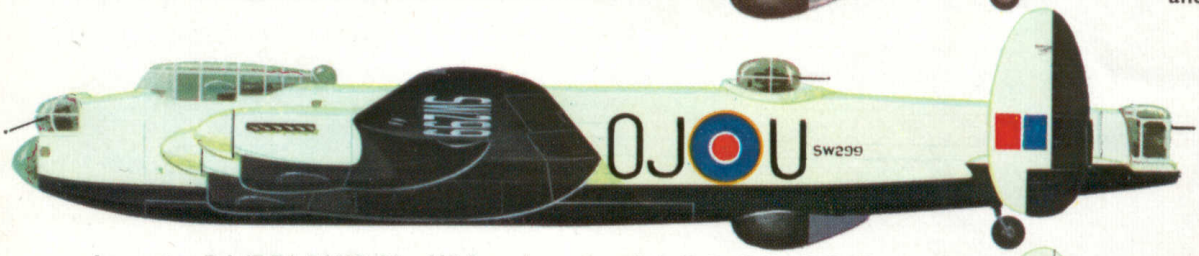
"UNCLE JOE" AGAIN!

Personal emblem JO+U.

Lancaster B.I (Special), *PD133*, No. 617 Squadron, Woodhall Spa, Lincs., 1945.

Lancaster B.I (F.E.) *SW299*, No. 149 (East India) Squadron, Methwold, Norfolk, 1945–46.

Lancaster B.I, *ED930/A66-1*, S.E.A.C. roundels, during bond purchasing tours of Australia, New Zealand and Tasmania, 1944–45.



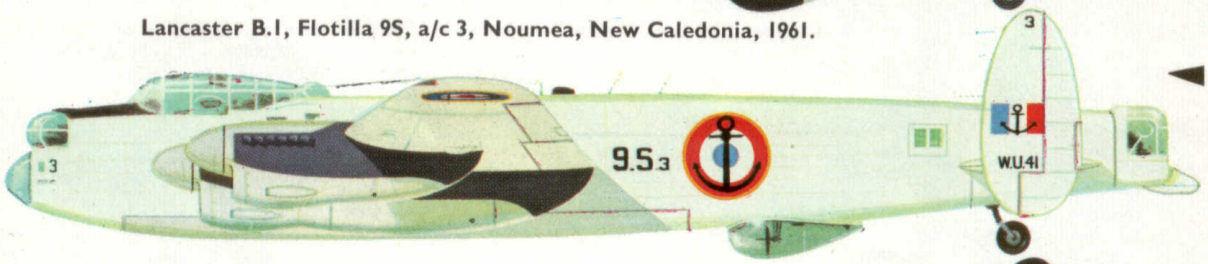
Lancaster B.I (F.E.) *PA433*, No. 115 Squadron, Stradishall, Suffolk, 1946–47.

Wing insignia.

Lancaster B.I (F.E.) *PA386*, No. 214 (Federated Malay States) Squadron, Upwood, Hunts., 1950.

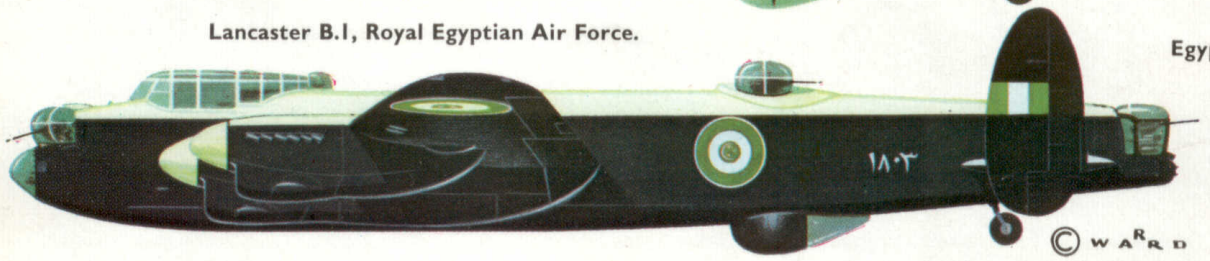
Fin flash detail.

Lancaster B.I, Flotilla 9S, a/c 3, Noumea, New Caledonia, 1961.



Wing insignia.

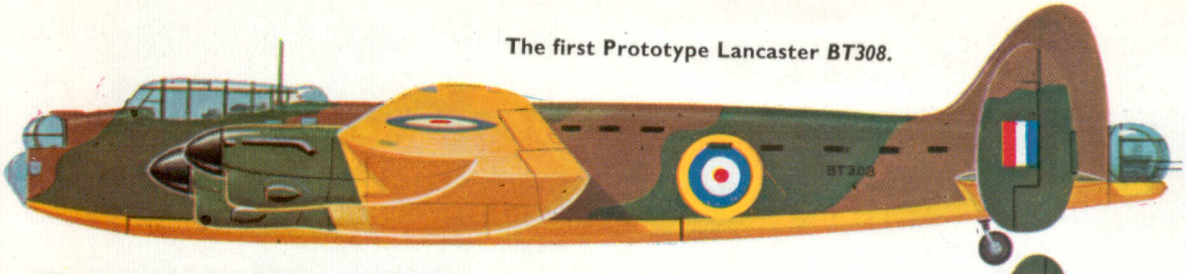
Lancaster B.I, Royal Egyptian Air Force.



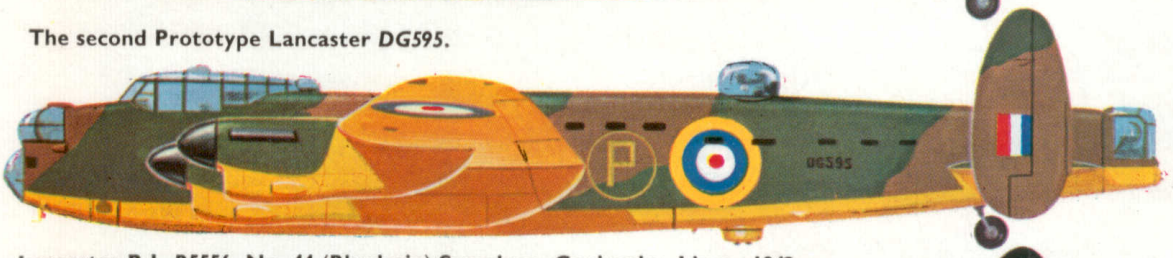
Egypt, wing insignia.

© WARD

The first Prototype Lancaster *BT308*.



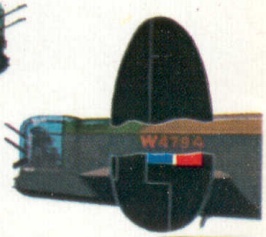
The second Prototype Lancaster *DG595*.



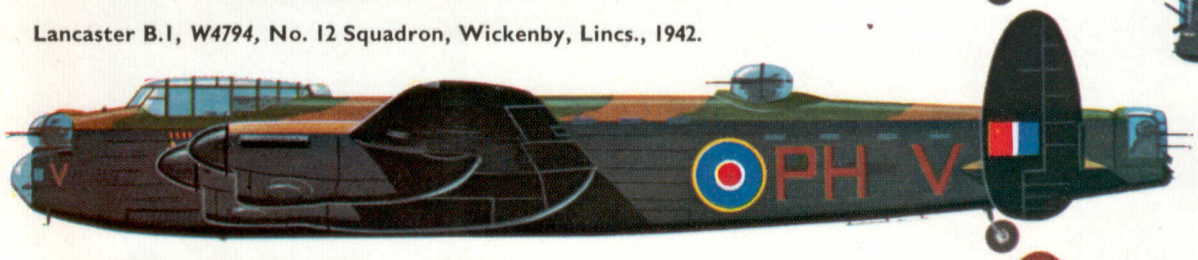
Prototype Identification Marking.

Lancaster B.I, *R5556*, No. 44 (Rhodesia) Squadron, Coningsby, Lincs., 1942.
Note ventral turret.

Position of serial number of PH+V.



Lancaster B.I, *W4794*, No. 12 Squadron, Wickenby, Lincs., 1942.



Personal emblem, PH+V, 5 Ops.

Lancaster B.I, *PD441*, No. 619 Squadron, Strubby, Lincs., 1945.

Lancaster B.I, *P8817/G*, No. 150 Squadron, Hemswell, Lincs., 1944–45.

Personal emblem, IQ+Q, 21 Ops. at time of illustrating.

Lancaster B.I, *RA530*, No. 57 Squadron, East Kirkby, Lincs., 1945.

Lancaster B.I, *DV397*, No. 61 Squadron, Coningsby, Lincs., 1944.

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